REMARKS

Status of Claims

In order to expedite prosecution, claims 1-36, 38-39, 43-44, and 50-62 have been canceled without prejudice or disclaimer as to the claimed subject matter. Claims 37, 40-41, 45-49 and 63-64 will be pending on entry of the current amendments. Claims 37, 40, 47, and 48 have been amended. Claims 63-64 have been added. Claims 46 and 48 stand withdrawn. It is understood that withdrawn claims 46 and 48 will be rejoined upon allowance of a linking claim.

Support for the amended and added claims can be found throughout the specification as originally filed, *inter alia*, on page 10, line 1-16. Accordingly, applicants submits that no new matter is introduced into the specification by way of the present amendments. Applicants respectfully requests entry of the amendments, and reconsideration of the remaining pending claims.

Information Disclosure Statement

Applicants would like to thank the examiner for considering the IDS of 6/24/2004 in full and the IDS of 12/19/2003 in part. The part of the IDS of 12/19/2003 not considered by the examiner is now provided in the IDS submitted with this Office Action to correct the typographical errors of the original IDS.

Priority

After entry of the above amendment to the specification, the first sentence of the specification references U.S. Application No. 10/375,906, to which the present application claims the benefit of priority under 35 U.S.C. 121. Applicants believe that the present amendment overcome the examiner's objection and that the application is in compliance with 37 CFR 1.78(a). Applicants therefore respectfully request withdrawal of this objection to the specification.

Reply to Rejections Under 35 U.S.C. § 112, ¶ 1, Written Description

Claims 37-45, 47, and 49 are rejected under 35 U.S.C. § 112, ¶ 1 as allegedly failing to comply with the written description requirement. Specifically, the Office Action alleges: "the specification does not teach a single reagent that is useful in treating mammalian diseases." See Office Action at page 9.

Applicant's respectfully disagree with this rejection. Applicant's have amended claim 37 to recite a process for treating a disease comprising administering to a subject an effective amount of a reagent that increases the intracellular or extracellular or serum level of a mammalian glycolipid in a subject, and respectfully submit that the specification adequately describes that glycolipids are useful as a reagents in the recited methods. For instance, the specification provides that glucosylceramides may be used to treat, for example, cancer, infectious diseases, and any immune-mediated pathogenic condition as follows:

> Intermediary metabolites, such as glucosylceramides, can be used in accordance with this invention to treat various diseases, including cancer, infectious diseases and any immune-mediated pathogenic condition. *For example in the instance of small cell carcinoma of the lung, subjects can be treated by administration of glucosylceramides such that at least one component of the immune system is elevated to such an extent that a specific activation of the NKT cell population is effected.* Under these conditions the immune response to the cancer will be altered in such a manner that the cancer cells will be turned over or destroyed or lead to be destroyed and the subject will enter remission or experience a significant diminution of the cancer. *A comparable effect can also be achieved by removing NKT cells from the subject and exposing these cells to glucosylceramides in vitro under conditions that will permit the survival and growth of the cells.* When these ex vivo-trained cells are transferred back into the subject these cells will direct an immune response that can lead to a remission of the cancer or a significant diminution of the cancer.

Specification at paragraph spanning pages 13 and 14 (emphasis added).

Furthermore, the specification provides at the top of page 15: "Such glycolipids can in turn comprise a monosaccharide ceramide, *e.g.*, glucosyl

ceramide or gala(c)tosyl ceramide." On the lower part of page 15, the specification states: "The glycoplipids can comprise a monosaccharide ceramide. Preferred are glucosyl ceramide or gala(c)tosyl ceramide." In the original set of filed claims, "monosaccharide ceramide" is specifically named in claims 4, 28, 40 and 55 and "glucosyl ceramide and gala(c)tosyl ceramide" are specifically named in claims 5, 29, 41 and 56.

Applicants therefore respectfully submit that the proposed change in language of claim 37 is a specific description of the particular kind or type of intermediary metabolite that could be used as a reagent. Moreover, the claims dependent from claim 37 recite monosaccharide ceramide and specifically glucosyl ceramide and galactosyl ceramide, which provide further structural definitions with regard to the particular reagents recited by the present claims. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection in view of the above amendment.

Reply to Rejection Under 35 U.S.C. § 112, ¶ 1, Enablement

Claims 37-45, 47, and 49 are rejected under 35 U.S.C. § 112, ¶ 1 as allegedly failing to comply with the enablement requirement. Specifically, the Office Action alleges that:

> The specification does not provide any guidance directing at the type or kind of reagent that the skilled artisan should use to treat mammalian disease. The specification does not even contain any guidance relating to the structural characteristics of reagents used with the claimed invention.

Office Action page 12, lines 16-19.

It is well established under 35 U.S.C. §112 ¶ 1, that "[t]he test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation." (*United States v. Telectronics, Inc.*, 857

F.2d 778, 785 (Fed. Cir. 1986)). The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. *In re Angstadt*, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976), MPEP § 2164.01.

Here, the specification provides adequate guidance to one of skill in the art to practice the recited process for the treatment of cancer, viral infection, or autoimmune disorder without undue experimentation. For instance, the specification discloses that Gaucher's patients display a natural buildup of monosaccharide ceramides that produces beneficial results with regard to immune responses to HCV infection. The specification also provides that the same buildup may be created in a non-Gaucher's patient to achieve the same or similar beneficial outcome. Furthermore, the specification provides examples as to the types of disease where the present invention may be applied, *e.g.*, cancer, viral infections, and immune dysfunctions. Specific reference is made to using an intermediary metabolite for HBV, HCV, or HIV infection on page 12 of the specification; treatment of small cell carcinoma of the lung with glucosylceramide on page 13; and treatment of autoimmune diseases such as diabetes type I, diabetes type II, rheumatoid arthritis, Crohn's disease, arteriosclerosis and ulcerative colitis on page 14.

With regard to immune dysfunction diseases, the specification notes the utility of the present invention in autoimmune diseases where there is an inappropriate response to native cells. Applicants have additionally submitted to the Examiner references that demonstrated that application of a glycolipid (α-glucosylceramide) may reduce disease manifestations. See IDS. Moreover, as stated on page 14 of the specification: "The present invention can also be applied to management of cancers, where the immune response contributes to the pathogenesesis." Development of cancer is considered a product of some defect

in what is commonly termed "immune surveillance." In other words, not only is there supposed to be some aberration in the cancer cells that have resulted in their transformation, but there has also been a failure in the immune system to recognize the presence of these abnormal cells.

Consistent with the above disclosures, claim 37 has been amended to recite: "wherein said disease is cancer, a viral infection or an autoimmune disease." Furthermore, claim 37 has been amended to recite a glycolipid as the mammalian intermediary metabolite, and claims 40 and 41 recite monosaccharide ceramide, glucosylceramides and galactosylceramide. Applicants believe that the current amendments are sufficient to address the above rejection, and thus respectfully request withdrawal of this rejection.

CONCLUSION

An indication of allowance of all claims is respectfully solicited. Early notification of a favorable consideration is respectfully requested. In the event any issues remain, Applicant would appreciate the courtesy of a telephone call to their counsel to resolve such issues and place all claims in condition for allowance.

It is believed that no additional fees are required with this submission. However, in the event that additional fees are deemed necessary, or in the event of any variance between the amount enclosed and the fees determined by the USPTO, please charge or credit any such variance to the undersigned's Deposit Account No. 50-0206.

Respectfully submitted,

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